

CLAIMS:

What is claimed is:

- 1 1. A tape library storage system, comprising:
 - 2 at least one tape drive tray;
 - 3 an intelligence module within the at least one tape
 - 4 drive tray, said intelligence module having electronics
 - 5 to control and monitor tape drive tray functions in the
 - 6 storage library; and
 - 7 a main library controller interfaced to the
 - 8 intelligence module, wherein the intelligence module
 - 9 sends tape drive tray function data to the main library
 - 10 controller.
- 1 2. The system in claim 1, wherein the intelligence
- 2 module interface includes a tape transport interface
- 3 port.
- 1 3. The system in claim 1, wherein the tape drive tray
- 2 function data is sent via a wireless connection.
- 1 4. The system in claim 3, wherein the wireless
- 2 connection includes at least one of a radio frequency or
- 3 infrared transmission.
- 1 5. The system in claim 1, wherein the main library
- 2 controller transmits commands to be performed on the tape
- 3 drive tray by the intelligence module.

1 6. The system in claim 5, wherein positive or negative
2 acknowledgment of the commands is sent back to the main
3 library controller after the commands are received by the
4 intelligence module.

1 7. The system in claim 5, wherein the main library
2 controller transmits the command to the intelligence
3 module in a serial format.

1 8. The system in claim 7, wherein the intelligence
2 module decodes the serially formatted command into
3 discrete signals corresponding to a specific tape drive
4 tray interface.

1 9. The system in claim 1, wherein the tape drive tray
2 includes at least one of a tape drive, a power supply, a
3 fan, a temperature sensor, and a fault indicator light,
4 each interfaced to the intelligence module.

1 10. The system in claim 1, wherein the intelligence
2 module sends tape drive tray function information to the
3 main library controller in a serial format.

1 11. The system in claim 1, wherein the tape drive tray
2 function data is gathered by periodically sampling status
3 signals from the tape drive tray.

1 12. A method of transmitting data between a tape drive
2 tray and a main library controller, comprising:

3 controlling and monitoring tape drive tray functions
4 using an intelligence module within the tape drive tray;
5 and

6 sending tape drive tray function data to a main
7 library controller interfaced to the intelligence module,
8 wherein the intelligence module sends the data to the
9 main library controller.

1 13. The method in claim 12, wherein the intelligence
2 module interface includes a serial interface to a tape
3 drive.

1 14. The system in claim 12, wherein the tape drive tray
2 function data is sent via a wireless connection.

1 15. The system in claim 14, wherein the wireless
2 connection includes at least one of a radio frequency or
3 infrared transmission.

1 16. The method in claim 12, wherein the main library
2 controller transmits commands to be performed on the tape
3 drive tray by the intelligence module.

1 17. The method in claim 16, wherein positive or negative
2 acknowledgment of the commands is sent back to the main
3 library controller after the commands are received by the
4 intelligence module.

1 18. The method in claim 16, wherein the main library
2 controller transmits the command to the intelligence
3 module in a serial format.

1 19. The method in claim 18, wherein the intelligence
2 module decodes the serially formatted command into
3 discrete signals corresponding to a specific tape drive
4 tray interface.

1 20. The method in claim 12, wherein the tape drive tray
2 includes at least one of a tape drive, a power supply, a
3 fan, a temperature sensor, and a fault indicator light,
4 each interfaced to the intelligence module.

1 21. The method in claim 12, wherein the intelligence
2 module sends tape drive tray function information to the
3 main library controller in a serial format.

1 22. The method in claim 12, wherein the tape drive tray
2 function data is gathered by periodically sampling status
3 signals from the tape drive tray.

1 23. A method of transmitting data from a tape drive tray
2 to a main library controller, wherein the data to be
3 transmitted is gathered by an intelligence module within
4 the tape drive tray, comprising:

5 periodically sampling status information generated
6 from devices within the tape drive tray; and
7 sending the status information to main library
8 controller in a serial format.

1 24. The method in claim 23, wherein the devices
2 generating status information include at least one of a
3 tape drive, a power supply, a fan, a temperature sensor,
4 and a fault indicator light.

1 25. A method of controlling devices located within a
2 tape drive tray, comprising:
3 transmitting control data to the tape drive tray in
4 a serial format;
5 receiving the control data at the tape drive tray,
6 wherein an intelligence module within the tape drive tray
7 decodes the control data; and
8 using the intelligence module to drive discrete
9 signal lines to a state as specified in the control data.